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BS Information Systems
(AACCUP, Inc. Reaccredited Level 2)

Capstone Project Title Approval Form

Group Code: [SD-3E1]
Proponents

Project Leader: June Charles Mariquit

Group Members:
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Proposed Capstone Project Title

"GarbageSense: Intelligent Waste Management System for a Cleaner Future"

Name and Contact No. or Target Organization

Smart Home System

Platform

Iot Device/Mobile Application

Background of the Organization/Firm/Target Pilot Area

A smart home is a technologically advanced living space that integrates various devices and systems to enable remote control, automation, and customization of home functions, enhancing convenience and efficiency. By connecting devices and enabling seamless communication, a smart home provides homeowners with greater control, energy savings, and improved comfort in their daily lives.

Problem Statement

Problems	*Causes*	*Solutions (As a Feature of your System*
The main problem is the lack of efficient waste management and limited monitoring capabilities. Traditional trash bins do not provide real-time information on fill levels, which can lead to overflowing bins and inefficient waste collection. Additionally, without proper waste segregation compartments, it can be challenging to promote recycling and separate different types of waste effectively. This can result in increased environmental impact and difficulty in implementing sustainable waste management practices.	The cause of the problem is primarily due to their lack of advanced features and functionality. These bins are typically designed without sensors or monitoring systems to track the fill level, leading to inefficient waste management. Additionally, the absence of compartments for waste segregation makes it difficult to promote recycling and proper waste disposal practices. The design and functionality limitations of traditional trash bins contribute to the challenges faced in effective waste management.	The primary solution to the limitations of traditional trash bins is to replace them with modern smart bins. Smart bins come with advanced features such as sensors for real-time monitoring of the fill level, compartments for proper waste segregation, and connectivity to the internet and other systems. Smart bins can send notifications or alerts when the bin is nearing full capacity, providing information to waste management personnel for efficient scheduling of collection. This helps prevent overflowing bins

		and maintain a clean environment. Furthermore, smart bins have compartments for proper waste segregation, such as recyclables, organic waste, and general waste. This simplifies the process of separating different types of waste and strengthens recycling efforts. By using smart bins, we can improve waste management, enhance recycling initiatives, and contribute to the creation of a cleaner and more efficient waste management system.

Objectives

This study aims to develop an smart garbage monitoring system for smart home that has the following specific objectives;

Specific Objectives

1. Provide real-time monitoring of the fill levels of garbage bins to ensure they do not reach capacity and prevent overflow;
2. Ensure waste collection is scheduled efficiently based on the data of bin fill levels, resulting in effective resource utilization and energy and time savings;
3. Provide compartments or separate spaces within the garbage bins for proper segregation of different types of waste, such as recyclables, organic waste, and general waste. This aims to strengthen recycling efforts and waste segregation practices;
4. Facilitate mechanisms for community involvement and participation in waste management, such as providing information to users about proper waste disposal and recycling initiatives;
5. Collect and analyze data on waste generation patterns, fill levels, and other relevant information. This data can be used to provide insights for waste management program planning, optimization of collection routes, and improvement of policies and processes; and
6. Raise awareness about waste management issues, recycling, and environmental conservation through information dissemination and community campaigns.

Specific Functions and Features

1. Real-time fill level monitoring;
2. Data analytics and reporting;
3. Remote monitoring and alerts;

4. Route Optimization;
5. Waste segregation compartments;

Significance and Possible Users

- Homeowners - the primary users of a smart garbage monitoring system in the context of a smart home. By integrating this system into their smart home environment, homeowners can enjoy the convenience, efficiency, and sustainability benefits of automated waste management.

Level of Feasibility

- The proposed project is feasible because due to technological advancements, cost-effectiveness, compatibility with existing infrastructure, user-friendly interfaces, environmental sustainability, and scalability.

For Review Committee Only

Comments:

Status:	
☐ For Revision ☐ Approved ☐ Disapproved	_____ Signature Over Printed Name

Note: You may attach the results of your survey and feasibility analysis, if needed.